DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Disease Control and Prevention

[60Day-23-23BX; Docket No. CDC-2022-0144]

Proposed Data Collection Submitted for Public Comment and Recommendations

AGENCY: Centers for Disease Control and Prevention (CDC), Department of Health and Human Services (HHS).

ACTION: Notice with comment period.

SUMMARY: The Centers for Disease Control and Prevention (CDC), as part of its continuing efforts to reduce public burden and maximize the utility of government information, invites the general public and other federal agencies to take this opportunity to comment on a proposed information collection, as required by the Paperwork Reduction Act of 1995. This notice invites comment on a new proposed information collection project titled Pre-Shift Lighting Interventions to Improve Miner Safety and Well-Being. The purpose of this information collection is to examine the effect of human centric lighting (HCL) interventions on circadian disruption (CD) and well-being in underground mineworkers.

DATES: Written comments must be received on or before [INSERT DATE 60 DAYS AFTER PUBLICATION DATE IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments, identified by Docket No. CDC-2022-0144 by any of the following methods:

- Federal eRulemaking Portal: www.regulations.gov. Follow the

instructions for submitting comments.

- Mail: Jeffrey M. Zirger, Information Collection Review Office, Centers for Disease Control and Prevention, 1600 Clifton Road, NE, MS H21-8, Atlanta, Georgia 30329.

Instructions: All submissions received must include the agency name and Docket Number. CDC will post, without change, all relevant comments to www.regulations.gov.

Please note: Submit all comments through the Federal eRulemaking portal (www.regulations.gov) or by U.S. mail to the address listed above.

FOR FURTHER INFORMATION CONTACT: To request more information on the proposed project or to obtain a copy of the information collection plan and instruments, contact Jeffrey M. Zirger, Information Collection Review Office, Centers for Disease Control and Prevention, 1600 Clifton Road, NE, MS H21-8, Atlanta, Georgia 30329; Telephone: 404-639-7118; E-mail: omb@cdc.gov.

SUPPLEMENTARY INFORMATION: Under the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501-3520), federal agencies must obtain approval from the Office of Management and Budget (OMB) for each collection of information they conduct or sponsor. In addition, the PRA also requires federal agencies to provide a 60-day notice in the *Federal Register* concerning each proposed collection of information, including each new proposed collection, each proposed extension of existing collection of information, and each reinstatement of previously approved

information collection before submitting the collection to the OMB for approval. To comply with this requirement, we are publishing this notice of a proposed data collection as described below.

The OMB is particularly interested in comments that will help:

1. Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;
2. Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;
3. Enhance the quality, utility, and clarity of the information to be collected;
4. Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submissions of responses; and
5. Assess information collection costs.

Proposed Project

Pre-shift Lighting Interventions to Improve Miner Safety and Well-being – New – National Institute for Occupational Safety

and Health (NIOSH), Centers for Disease Control and Prevention (CDC).

Background and Brief Description

The National Institute for Occupational Safety and Health (NIOSH) seeks a two-year approval from the Office of Management and Budget (OBM) to collect information needed to develop strategies and guidance to improve the safety, health, and well-being of underground shift workers in the U.S. mining industry. Light has both visual and non-visual impacts on the human body, enabling us to visually perceive the world and non-visually experience circadian entrainment and acute effects that include alertness, concentration, and performance on cognitive tasks. Hence, light drives our fundamental physiological functioning.

It is not surprising that underground miners have significant reductions in exposure to daylight—especially those miners working shifts. This lack of exposure to daylight can lead to fatigue and circadian disruption (CD) that can result in sleep loss and reduced alertness. These factors can increase risk of accidents and lead to health problems that include obesity, diabetes, and cancer.

This study will evaluate the impacts of blue and red-light treatment at the beginning of the work shift on reaction time task performance, sleepiness and alertness, subjective well-being, sleep efficiency and circadian rhythms in underground mine workers.

A 2 x 2 randomized crossover, mixed design will be used to test the efficacy and acceptability a human centric lighting (HCL) intervention using light-emitting eyewear delivered to shift workers at multiple mines within a two-year study period. A cross-over design has a significant advantage because the subjects serve as their own control, which serves to minimize variations caused by circadian phase differences, sleep patterns, etc. of the individual participants. The other advantages include greater sample size efficiency with randomization of treatment order and all subjects receive all the treatments. Participants will be underground miners who regularly work the 1st, 2nd or 3rd shifts.

NIOSH researchers will obtain informed consent from volunteer mineworkers to conduct an intervention study and administer both electronic and paper and pencil surveys. Before beginning the study, the respondents will provide their informed consent to participate, be given an overview of the demographic information that will be collected and will be instructed how to properly wear the lighted eyewear, how to use the actigraphy device, and how to use a wearable temperature sensor device. During the course of the study, participants will be asked to complete eight short surveys: 1) demographic information; 2) the Checklist of Individual Strengths; 3) the Karolinska Sleepiness Scale (KSS); 4) PROMIS Sleep Related Impairment Questionnaire (PSRIQ); 5) PROMIS Sleep Disturbance Questionnaire (PSDQ); 6) Shiftwork Disorder Screening Questionnaire; 7F) the Lighted

Eyeglasses Intervention Acceptability survey; and 8) Morning-Eveningness Questionnaire. They will also be asked to take the NASA Psychomotor Vigilance Test (PVT), log caffeine intake and sleep, wear an actigraphy wristband, and on certain occasions wear a temperature sensing device.

Intervention lighting doses will be administered via commercially available lightweight, light-emitting glasses during the nonworking periods or pre-shift. Each participant will experience two lighting interventions: Treatment A is dim red light (10 lx, 3000 K, the placebo control), and Treatment B is blue-enriched, polychromatic lighting (the treatment intervention). For each study group, half of the subjects will first experience the blue-light exposure, and half will first experience the red-light exposure during a three-week experimental phase. After a two-week washout period designed to minimize carryover or residual learning effects from the prior treatments, subjects will experience the lighting treatment condition they did not yet experience for another three-week period. While wearing lighted eyewear the participants will evaluate comfort, glare and acceptability of the eyewear, while the KSS, the PSRIQ, PSDQ, and the NASA PVT will be re-administered at various intervals throughout the course of the study. The total number of responses for each data collection instrument are indicated in the estimated annualized burden hours table below.

Survey data will be collected during pre-shift periods and

at home on working days and at home on non-working days. Time for data collection at the beginning of the shift will be no more than 25 minutes. NIOSH researchers will collect data at participating sites in above ground facilities on working days. Participants will also complete brief caffeine and sleep logs and wear an actigraphy wristband that records activity and sleep patterns and light/dark exposure while at home. At various intervals of the study, participants will wear a temperature sensor device to derive core body temperature. It is estimated that at-home data collection time will be no more than eight minutes per instance per participant.

This data collection will occur within a two-year period beginning after OMB approval and is designed to gather information not previously available. Potential impacts of this project include improvement of the health, safety, and well-being of underground mineworkers by reducing fatigue and CD through new recommendations and HCL-interventions. This project will also answer several research questions that will help establish the efficacy of the new HCL interventions so that they could be commercialized by mine lighting companies and used by underground mining companies.

CDC requests OMB approval for an estimated 1,007 annualized burden hours. There are no costs to respondents other than their time to participate.

Estimated Annualized Burden Hours

Type of Respondents	Form Name	Number of Respondents	Number of Responses per Respondent	Average Burden per Response (in hours)	Total Burden (in hours)
Underground Mineworkers	Informed consent	90	1	30/60	45
Underground Mineworkers	Participant Training	90	1	30/60	45
Underground Mineworkers	Demographics	90	1	1/60	2
Underground Mineworkers	Checklist of Individual Strengths	90	1	2/60	3
Underground Mineworkers	Karolinska Sleepiness Scale	90	36	1/60	54
Underground Mineworkers	Lighted Eyewear	90	2	2/60	6
Underground Mineworkers	Lighted Eyeglasses Intervention Acceptability Survey	90	2	1/60	3

Underground Mineworkers	PROMIS Sleep Related Impairment Questionnaire	90	4	10/60	60
Underground Mineworkers	PROMIS Sleep Disturbance Questionnaire	90	4	5/60	30
Underground Mineworkers	Psychomotor Vigilance Test	90	36	6/60	324
Underground Mineworkers	Shiftwork Disorder Screening	90	1	8/60	12
Underground Mineworkers	Actigraphy Don and Remove	90	49	3/60	221
Underground Mineworkers	Caffeine log	90	49	1/60	74
Underground Mineworkers	Temperature Sensor Device (on and remove)	90	12	3/60	54
Underground Mineworkers	Sleep Log	90	49	1/60	74
Total					1007

Jeffrey M. Zirger,

Lead,

Information Collection Review Office,

Office of Scientific Integrity,

Office of Science,

Centers for Disease Control and Prevention.

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